

THE PRIMARY TYPES OF THE RICHARD M.
BOHART MUSEUM OF ENTOMOLOGY, I.
TARDIGRADA

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Abstract.—This paper lists the primary types of Tardigrada deposited in the Richard M. Bohart Museum of Entomology, University of California, Davis, California (UCD). A brief history of the museum is also given.

This is the first in a series of articles listing the primary type specimens in the collection of the Richard M. Bohart Museum, Department of Entomology, University of California, Davis, California (UCD).

All of the primary types listed here are holotypes. The Bohart Museum is presently responsible for 1438 primary types. Information was compiled from type labels, original descriptions, field notes and reexamination of type specimens.

Names listed for types and host species are as in the original description of the type. Changes in the name of a host species before original publication of the type are noted. Zoological or botanical synonymies are not established in this paper.

History of the Bohart Museum Collections

The research collections of the Department of Entomology, University of California, Davis were established in 1946. Mr. A. T. McClay, the first curator, enlarged the holdings from a Schmidt box each of Calliphoridae and honey bees to about 600,000 specimens, housed in California Academy style cabinets. The collection was particularly rich in Coleoptera donated from his personal collection.

Mr. McClay retired in 1966 and managerial responsibility was assumed by Mr. Robert O. Schuster. At that time the decision was made to maintain a type collection, and to broaden holdings of non-insectan ar-

thropods because an invertebrate collection did not exist at the University of California, Davis. Prior to 1966 primary types were deposited with the California Academy of Sciences.

The collections have grown partly through active California-based field research programs, and the result is a rich selection of material from the Western United States and Mexico. In addition, the research interests of faculty and graduate students have led to significant cosmopolitan holdings in many taxonomic groups. In recognition of the rapid destruction of neotropical habitats, the collection and preparation of specimens from northern South America, Central America, and the West Indies is a high priority of the museum.

The various collections of insects and related arthropods were officially dedicated on 11 October 1983 as the Richard M. Bohart Museum of Entomology. The museum holds in excess of four million prepared specimens, includes from 50,000 to 100,000 uncataloged allotypes and paratypes, and is supported by the Department of Entomology and the Bohart Museum Society, founded in 1986. The acronym used for the Richard M. Bohart Museum of Entomology is UCD.

This list, the Tardigrada, contains 21 types resulting from the studies of Albert A. Grigarick, Robert O. Schuster, and Elizabeth C. Toftner at UC Davis, Donald S. (Woody) Horning, Jr., presently at Mcleay Museum,

University of Sydney, Australia, the late Franz Mihelčič, and Diane R. Nelson at East Tennessee State University. The tardigrade collection comprises 60,000 slides and is cosmopolitan with specimens from all continents excluding Asia. We felt it appropriate to list the Tardigrada separately from the rest of the primary types, as these invertebrates are not currently thought to be arthropods.

The Bohart Museum Tardigrada
Type Collection

Class Heterotardigrada
Family Oreellidae

Oreella breviclava Grigarick, Schuster, & Nelson, 1983:66. Holotype is a female, UCD 1269; type locality La Carbonera, Campo Elias, Merida, Venezuela, 2000 ft, collected by R. W. Brooks, A. A. Grigarick, J. McLaughlin, & R. O. Schuster on 30 Jun 1979.

Family Echiniscidae

Bryodelphax crossotus Grigarick, Schuster, & Nelson, 1983:69. Holotype is a female, UCD 1270, from Rancho Grande, Aragua, Venezuela, 1130 m, collected by R. W. Brooks, A. A. Grigarick, J. McLaughlin, & R. O. Schuster on 14 Jul 1979.

Echiniscus (Bryodelphax) dominicanus Schuster & Toftner, 1982:225. Holotype is a female, UCD 1215, from Constanza, La Vega Province, Dominican Republic, collected by R. O. Schuster on *Groustiella mucronifolia* (Hooker & Greville, 1824: 116) Crum & Steere 1950:146. Crum & Anderson 1981:738 state that "The type of *Orthotrichum mucronifolium* Hook. & Grev. 1824, collected by Guilding in the West Indies, is clearly the same as the Mexican type of *O. apiculatum* Hook. 1818, collected by Humboldt and Bonpland. It is obvious, therefore, that *Groustiella mucronifolia* belongs in the synonymy of *G. apiculata*." The label data for

the host plant for *E. (Bryodelphax) dominicanus* is probably incorrect, and *Groustiella apiculata* (Hooker, 1818:plate 45) Crum & Steere 1950:146 is the appropriate name for this moss.

Echiniscus aliguantilus Grigarick, Schuster, & Nelson, 1983:73. Holotype is a female, UCD 1266, from La Carbonera, Campo Elias, Merida, Venezuela, collected by R. W. Brooks, A. A. Grigarick, J. McLaughlin & R. O. Schuster on 30 Jun 1979.

Echiniscus becki Schuster & Grigarick, 1966: 127. Holotype sex is uncertain, UCD 209, from Mountaineer Mine, south of Vidal Junction, Riverside Mountains, Riverside County, California, collected by A. J. Beck & R. O. Schuster.

Echiniscus cavagnaroi Schuster & Grigarick, 1966:321. Holotype sex is uncertain, UCD 94, from Old Bella Vista trail, Santa Cruz Island, Galápagos Islands, Ecuador, 90 m, collected by R. O. Schuster, on 4 Feb 1964, in mixture of *Frullania* sp., *Parmelia* sp., and *Ramalina* sp.

Echiniscus horningi Schuster & Grigarick, 1971:105. Holotype sex is uncertain, UCD 322, from Silver Falls State Park, Marion County, Oregon, collected by D. S. (Woody) Horning, Jr., on 10 Jan 1970.

Echiniscus knowltoni Schuster & Grigarick, 1971:109. Holotype sex is uncertain, UCD 401, from Black Pine, Oneida County, Idaho, collected by G. F. Knowlton on 29 Sep 1969.

Echiniscus kofordi Schuster & Grigarick, 1966:321. Holotype sex is uncertain, UCD 95, from Darwin Research Station, Santa Cruz Island, Galápagos Islands, Ecuador, less than 10 m, collected by R. O. Schuster on 21 Jan 1964, on *Ramalina* sp.

Echiniscus (Echiniscus) laterculus Schuster, Grigarick, & Toftner, 1980:265. Holotype is a female, UCD 1264, from River-ton, El Dorado County, California, collected by E. C. Toftner & R. O. Schuster, on 1 Feb 1974.

Echiniscus marginoporus Grigarick, Schuster, & Nelson, 1983:76. Holotype is a fe-

male, UCD 1268, from La Mucuy, Campo Elias, Merida, Venezuela, 2000 m, collected by R. W. Brooks, A. A. Grigarick, J. McLaughlin, & R. O. Schuster, on 30 Jun 1979.

Echiniscus mosaicus Grigarick, Schuster, & Nelson, 1983:76. Holotype is a female, UCD 1267, from La Carbonera, Campo Elias, Merida, Venezuela, collected by R. W. Brooks, A. A. Grigarick, J. McLaughlin, & R. O. Schuster, on 30 Jun 1979.

Echiniscus robertsi Schuster & Grigarick, 1965:56. Holotype sex is uncertain, UCD 93, from bog at Sand Point, Popof Island, Alaska, collected by Warren G. Roberts, in mid June 1963.

Parechiniscus armadilloides Schuster, 1975:335. Holotype is a female, UCD 904, from Logan Canyon near Logan, Cache County, Utah, collected by D. R. Miller & A. S. Menke, on 5 Apr 1973.

Pseudechiniscus goedeni Grigarick, Mihelčič, & Schuster, 1964:5. Holotype sex is uncertain, UCD 90, from 6 mi SSW of Breitenbush Hot Springs, Marion County, Oregon, collected by K. Goeden, on 18 Oct 1962, in lichens on Douglas fir and cedar.

Pseudechiniscus raneyi Grigarick, Mihelčič, & Schuster, 1964:6. Holotype sex is uncertain, UCD 91, from 46 mi E of Fresno on Hwy 189, Tulare County, California, 4300 ft, collected by A. A. Grigarick, on 31 Oct 1962, in mixed lichen and moss on pine.

Class Eutardigrada Family Hypsibiidae

Hypsibius (Diphascos) iltisi Schuster & Grigarick, 1965:32. Holotype sex is uncertain, UCD 92, from Mt. St. Helena, Napa County, California, collected by J. S. Buckett & M. E. Irwin, on 13 Mar 1962, on a rotting cone of *Pseudotsuga menziesii* (Mirbel, 1825:63,70) Franco 1950:74.

Isohypsibius saltursus Schuster, Toftner, &

Grigarick, 1977:126. Holotype is a female, UCD 960, from Pope Beach, Lake Tahoe, El Dorado County, California, collected by R. O. Schuster & E. C. Toftner, on 10 Oct 1975.

Family Macrobiotidae

Macrobiotus grandipes Schuster, Toftner, & Grigarick, 1977:118. Holotype is a female, UCD 959, from Pope Beach, Lake Tahoe, El Dorado County, California, collected by R. O. Schuster & E. C. Toftner, on 12 Sep 1975.

Macrobiotus tridigitus Schuster, 1983:254. Holotype sex is uncertain, UCD 1217, from Sierra Martial, Tierra del Fuego, Argentina, 2000–2500 ft, collected by A. M. Shapiro, on 19 Jan 1979, at tree line, in cryptograms.

Pseudodiphascos dubium Schuster & Toftner, 1982:228. Holotype sex is uncertain, UCD 1216, from Cabrera, Sanchez Province, Maria Trinidad, Dominican Republic, collected by R. O. Schuster, on 1 Aug 1978, on *Lejeunea* sp.

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¹ Mr. Robert O. Schuster unexpectedly died on 15 August 1989, after this paper was submitted.